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Social context, art making processes and creative output: A qualitative study exploring how psychosocial benefits of art participation occur during stroke rehabilitation

ABSTRACT

Purpose

To explore stroke survivors' and artists' beliefs about participatory visual arts programme participation during in-patient rehabilitation to identify benefits and potential mechanisms of action.

Method

Qualitative design using semi-structured in-depth interviews with stroke survivors (n=11) and artists (n=3).

Analysis: Data was audio-recorded and transcribed. Framework approach was used to identify themes and develop conceptual schemes.

Results

The non-medical, *social context* of art facilitated social interaction, provided enjoyment and distraction from stroke and re-established social identity thereby improving mood. The *processes of art-making* generated confidence and self-efficacy, setting and achievement of creative, communication and physical recovery goals that provided control over survivors' situation and hope for recovery. *Creative output* involved completion of artwork and display for viewing. This enhanced self-esteem and improved mood, providing survivors with new identities through positive appraisal of the work by others. Self-efficacy, hope and control appeared to mediate benefits.

Conclusion

This study provides a model of intervention components, mechanisms of action and outcome mediators to explain how art participation may work. Findings suggest that art may influence important psychosocial outcomes that other rehabilitation approaches do not typically address. The study paves the way for a future effectiveness trial.

BACKGROUND

Evidence suggests that engaging in arts activities, such as painting, drawing, musical activity and creative writing is beneficial for wellbeing (1) and may improve perceived physical and mental health, social functioning and wellbeing in long-term conditions such as mental health problems (2-5), cancer (6), dementia (7), brain injury (8) and diabetes (1). The growing importance of arts in health is reflected in international policy documents and reviews (9, 10). Recently, art participation has also been introduced to compliment rehabilitation in conditions such as stroke.

Stroke is a major cause of adult disability, leading to physical, cognitive and speech impairments, loss of independence and restricted participation in life roles. Mood disorders are common, affecting 28-33% of stroke survivors at any time (11). Survivors also experience loss of confidence for life activities and low self-esteem (12). These psychosocial factors negatively influence engagement in rehabilitation; and when combined with disability, adversely affect quality of life (13). Improving post-stroke quality of life is prioritised in policy documents in Scotland, the UK (14, 15) and internationally (16, 17). Effects that art participation may exert on quality of life, means that its impact for stroke survivors should be investigated.

The arts interventions reported in the literature to have been used with stroke survivors include visual arts; music and creative writing, (18, 19). These interventions involve art participation facilitated by professional artists and the purpose is for survivors to engage with materials and media to produce a piece of completed artwork (20). The interventions do not involve psychotherapeutic arts therapy for treatment of specific psychological problems.

There is growing, but still limited evidence that art participation might enhance psychosocial outcomes after stroke. One qualitative study involving focus groups with 16 community dwelling stroke survivors after eight weekly visual arts group sessions suggested that art participation improved confidence, self-efficacy, quality of life and community participation (18). Another qualitative study involved semi-structured interviews conducted with 16 in-patient stroke survivors in a rehabilitation unit. Participants had engaged in up to four sessions of artistic activities one-to-one with an artist. The main findings showed that arts participation relieved boredom and provided mental stimulation and pleasure (19). Another reported benefit was the sense of reconnection with aspects of self, derived from art, a finding also reported by Symons et al (21). That study involved

nine participants with a range of neurological conditions including stroke who were also receiving out-patient physical rehabilitation. They attended weekly art classes for six months. Analysis of semi-structured interviews indicated that art contributed to participants meeting rehabilitation goals and enhanced confidence for engagement in future activities. Together these studies illustrate the potential benefits of art in enhancing psychosocial outcomes after stroke as an adjunct to rehabilitation.

However, whilst these studies provide some preliminary evidence to support art as a valuable intervention after stroke, the use of *visual* art alone has not been fully examined with in-patient stroke survivors. Community dwelling stroke survivors are at a different point in their recovery journey and it is likely that the meaning of art participation to them is different to those recently admitted to hospital with stroke. The only study conducted within in-patient stroke rehabilitation (19), involved as well as visual arts, diverse art activities including music, dance and creative writing. Although perceived benefits were reported, the heterogeneity of activities on offer makes it difficult to discern how benefits were derived from each, or how they differed. If we are to fully understand how participation in arts activities can benefit patient outcomes, it is important to understand which benefits derive from which *individual* characteristics of the interventions, and *how* those benefits occur. This can only be undertaken effectively by identification and evaluation of the essential elements of individual arts interventions. This is particularly important given the limited theoretical basis for benefits from art participation in clinical populations. Sense of control over ones situation and benefits from social engagement are potential mechanisms of art participation in older people; however the theories are underdeveloped within that context; and have not been evaluated at all with disabled in-patient populations such as stroke (22).

For art participation to be supported as an *effective* adjunct to rehabilitation we need to provide evidence of the benefits in ways that policy makers and service commissioners understand and value. Testing effects using robust and replicable methods such as randomised controlled trials (RCTs) will generate evidence of effectiveness. As we have argued, a first step in that process is to identify the likely benefits and to determine *how* they are produced in order to generate intervention frameworks and protocols that can be reliably reproduced. A second step is to identify valid measures that reliably capture benefits of the intervention. Evaluating art participation in this way is challenging and could be seen as reducing a creative process to a mechanistic one. However recent methodological developments show that evaluating complex and highly individualised interventions

such as art participation is possible. Methodological frameworks such as the MRC framework for complex intervention development and evaluation are designed to facilitate the undertaking of RCTs of complex interventions that require by their nature to be tailored and adjusted to specific and individual contexts.

Inherent in this process is identification and full description of essential intervention ingredients whilst understanding how adaptation to local or individual circumstances or preferences can occur. Thus *strict* fidelity to a protocol may not necessarily be required (23). Qualitative methods that elicit views, perceptions and experiences to facilitate intervention definition, identification of critical active ingredients, intervention benefits and core and adaptable characteristics are a key part of this complex intervention process. The use of such frameworks means that complex interventions such as art participation can be robustly modelled and described in ways that provide sufficient intervention standardisation for evaluation in an RCT whilst allowing for tailoring to individual interests and preferences.

This study aimed to explore stroke survivors' experiences, perceptions and beliefs about participation in an existing participatory visual arts programme, Tayside Creative Engagement Intervention (TCEI), conducted in stroke rehabilitation units as part of routine care (see below for description). Building on the previous qualitative studies, we also aimed to explore the views of artists who had led the programme to examine if and how their views differed from survivors'. Specific aims were a) To develop a detailed definition of the intervention b) to identify from participants' accounts a theoretical understanding of outcomes the intervention may influence after stroke c) to identify key intervention components and mechanisms of action from which potential benefits may be derived and d) to refine the theoretical basis for the intervention. This information was sought to inform development of a subsequent feasibility RCT by providing information to inform intervention remodelling for use in a trial. The trial protocol is reported elsewhere (24).

METHODS

Study Design

An exploratory qualitative approach, using in-depth semi-structured interviews with stroke survivors and artists was used. Interviews allowed responses to be probed, clarified and followed-up, providing a rich data set grounded in the lives of interviewees (25, 26). East of Scotland Research Ethics

Committee provided ethical approval (Ref. number1 3/ES/0006).

Tayside Creative Engagement Intervention

To provide a context for the study, this section explains the Tayside Creative Engagement Intervention (TCEI) in which survivors participated. TCEI is a participatory visual arts intervention developed by visual artists and academics and delivered routinely in stroke rehabilitation units for the past 10 years. Professional artists, trained to work with stroke survivors, are located in stroke units and run 12-week programmes. Participation is voluntary and there is no exclusion of patients with aphasia or cognitive impairments. The intervention involves 40 minute one to one and 90 minute group sessions per week with artists, away from ward and rehabilitation settings. Stroke survivors receive up to eight sessions, depending on length of rehabilitation stay. All survivors additionally receive conventional rehabilitation therapies.

Artists deliver the intervention in several stages underpinned by processes of: identification of survivors' personal goals; development of plans for goal achievement through tailoring activities and media (drawing & painting, printmaking, textiles, 3D modeling) to preferences, impairment and abilities; and provide progress review at each intervention stage. The activity stages described below represent the TCEI structure:

1. Meeting with artist, discussion of interests, stroke and goal identification. Participants' interests and preferences are discussed, and knowledge about their state of health and stroke-related impairments are obtained and recorded.
2. Introduction to materials and mark making using drawing, collage, printing, painting, mixed media techniques. Participants' ability to handle art materials and their expectations of the process is ascertained and an introductory experience of working with a range of materials is provided.
3. Progression from materials and mark making to developing personal project ideas and goals. Here the artist guides participants in use of the materials and illustrates how to consider content or subjects.
4. Developing personal project ideas into finished pieces. The participant controls and directs the expression of content and the artist instructs and facilitates the creative process of interpretation to allow development of personal project ideas into creative finished pieces.
5. Reviewing goals and achievement with celebration and display of artwork. The artist and participant review the completed work; and the artwork is mounted and displayed within the ward setting for viewing by staff, relatives and other patients
6. Discussion of future goals and plans for achievement. Achievement of a completed creative piece of work to provide a tangible output leads to the discussion of further ideas, which can be progressed by repetition of the intervention stages, supported by the artist.

Research sampling and recruitment

To elicit the range of and nature of survivors' beliefs and experiences of the TCEI, we purposively sampled previous TCEI participants. Stroke survivors who had previously participated in the TCEI were identified from the previous two-year's project records. We sought participants who varied in terms of age, gender, disability and duration of engagement in the intervention, since these factors may influence beliefs, and shape intervention experiences. Eligible survivors, whose records

indicated capacity to provide informed consent, were identified and sent an invitation letter by the artists involved in TCEI. Interested survivors were contacted by telephone by the researchers and invited to participate in a semi-structured interview. Three artists who previously delivered the TCEI in inpatient stroke units were also approached, and agreed to be interviewed (see Table 1). Written informed consent was obtained at the interview.

Insert Table 1 about here

Data Collection

Of eighteen survivors who were eligible to be approached, five male and six females aged 61-91 agreed to participate (See Table 2). Four participants had experienced communication difficulties following their stroke.

Insert Table 2 about here

MT, a psychologist and researcher with qualitative research experience conducted interviews. Interviews with stroke survivors lasted between 30 and 75 minutes and were conducted in participants' homes or a place of their choosing. Artists were interviewed in their work place or the local university. Sample size for stroke survivors' interviews was informed by the purposive sampling grid and by conveniently available participants within the timescale for this study phase. Topic guides, informed by research questions and information from literature review, informed the interview schedule. These focused on experiences, attitudes and perceived benefits of the CEI (see table 3).

Insert table 3 about here

Data analysis

Interview data was audio recorded and transcribed. Framework Approach (27) provided a systematic approach to data management, facilitated by Vivo 9.2. Three researchers (MT, CK, and JM) read transcripts and undertook initial coding. A coding framework was developed, informed initially by

research questions, with issues added as they emerged. The framework was applied to all transcripts, and codes were grouped under comprehensive analytical themes. Three researchers reviewed transcripts and applied the emerging thematic framework for inter-coder verification. Transcripts were indexed according to the thematic framework and data were inserted into thematic charts, allowing comparison between participant responses. New themes were added as they emerged from subsequent interviews. Constant comparison within Framework facilitated systematic data comparison and identification of themes and concepts, and ensured that the emerging theory was consistent with the totality of the dataset. Explanatory associations and relationships between themes were sought until an explanatory model was defined. Three researchers reviewed thematic charts, [MT, JM, and CK] and explanatory higher order themes and concepts were identified and characteristics defined and agreed. To check coding, themes and enquiry lines and to ensure trustworthiness of analytical processes, regular analysis meetings involving the whole team were conducted. Where disagreement occurred, researchers clarified concepts and searched transcripts to inform accurate interpretation of the text, by constantly searching for alternative explanations. Finally, findings were presented to survivors in a separate event, to obtain their opinions. The discussions facilitated refinement of emergent themes and concepts. These are presented in table 4. The explanatory model that describes the active ingredients of the intervention and mechanisms of action by which the intervention appears to work is provided in figure 1.

Insert table 4

Insert figure 1

FINDINGS

We identified three key intervention components, which appeared critical for generation of the mechanisms of action by which associated benefits were derived. The **social context** in which art making occurred, the **processes of art making** and the **creative output** of art making generated a range of mechanisms by which the benefits or outcomes appeared to occur. Using illustrative quotes, we explain each intervention component below, examine how survivors and artists perceived them, and explore ways in which together they appear to influence outcomes. For clarity, outcomes are highlighted in italics.

SOCIAL CONTEXT

Art sessions occurred away from ward and rehabilitation therapy areas in one to one sessions with artists and in groups with artists and other survivors. The inclusive social characteristics of the environment appeared important in enhancing survivors' *mood*. The change from the less stimulating medical environment also provided opportunity for social interactions and sharing of experience that improved *mood*, renewed a sense of self, and enhanced *communication* in a number of ways. We describe below how the social context created conditions through which benefits seemed to occur, with illustrative quotes from artists and survivors.

Contrast with the ward

Artists and stroke survivors reported that the art-room provided a more socially stimulating environment than the medical ward setting. The art-room provided cognitive stimulation through social interactions that did not occur in the more monotonous setting of the ward. Exposure to more stimulating social interactions led survivors to report improvements in *mood*:

.....it was good, it broke the monotony. I benefitted, it was nice to be in company. You just get depressed, seeing the same faces..... a couple of times I went up (to the art room) and I was a bit down and then I was feeling much better. It helped a lot (Participant 8, female stroke survivor, 62 years)

I take them into the day room and do some work with them and it's just a change of scene and they work with other patients, so it's quite sociable as well. And it lifts their mood and they come...they usually finish the class feeling quite happy and the mood is good, so, yeah (Artist 3, female, 5 years experience)

Findings suggest the social interactions afforded by the art group provided benefits that led survivors to establish themselves as people rather than patients, rediscovering positive identities beyond the identity of stroke typically reinforced by the ward environment. This occurred in several ways: the groups provided opportunity for sharing experiences and common bonds that extended beyond their situation within hospital, for re-establishment of own identity and for recognition of others' ability and identity. Another benefit was the interaction with others to facilitate **communication recovery**. These effects are defined and illustrated with quotes below:

Shared experience

Participation in art groups provided survivors with a safe environment that enabled stroke survivors to share experiences about aspects of their lives other than the stroke, providing them with respite from worry and thoughts about illness. The positive group dynamics and creative engagement process provided them with new ways to connect with other stroke survivors and with the artists. Artists and survivors agreed that these mechanisms influenced survivors' *mood*, and strengthened group dynamics:

The artist was so nice and she told us she was trying to sell her house. I think we did speak about half an hour and then the nurses used to bring us in a cup of tea and biscuits...what a great atmosphere that made all of us much happier. (Participant 5, female stroke survivor, 61 years)

I get people to engage with each other by saying things like you know this is Nancy, she likes gardening, you like that as well Alec....we chat about things that aren't related to what we're doing and ask about their backgrounds or their families. And the way they feel starts to change.(Artist 1, female, 8 years experience)

Distraction and relocation

The social context enabled survivors to interact with others as people, not just as stroke survivors, and through discussions of topics unrelated to the stroke, led to distraction from their situation. Furthermore, these opportunities displaced survivors from the medical experience of their stroke and the clinical environment of the ward and relocated them in a positive environment in which they could discuss and share everyday issues. These effects were also beneficial for survivors' *mood*:

Well that was really me and the craft stuff, you were sitting watching the other people, what they were doing. And sitting at the same time, they were all having a conversation...you know round the table, with one another.... Well, we discussed maybe general things about motoring and the weather and things like that... And I really enjoyed it because I had...one of the lads was a football supporter who supported a different team from me, so we had good banter. (Participant 1, male stroke survivor, 78 years)

You know drawing has that same, or painting has that same absorption, you know it pushes you into another place and I think for people who've had a stroke who are worried about where their life is going from here....it takes you, it transports you to another place and gives you relief from that and I think that is a huge benefit, whether it is dancing, singing, drawing, painting, you know, it is just the most wonderful thing I think that you can have at a time in your life when your life is in crisis (Artist 2, female, 7 years experience)

Recognising sameness and diversity

The opportunity to engage socially with others as individuals with diverse identities and interests enabled survivors to share interests and experiences. This enabled survivors to see themselves and others as individuals with past and future lives:

So generally speaking, people are interested if you were a bagpipe maker and they would just ask you what it involved...Everybody's job is of some interest. I mean, the porter in the fish market, he had some stories. ...and it makes you feel good talking, makes you realise you're not alone in this and there is still hope for something better (Participant 1, male stroke survivor, 78 years)

The group also provided opportunity to appreciate others' artwork. The shared experience reinforced the sense of each other as individuals with diverse skills that existed despite effects of the stroke:

I was lucky because I come from a background where I had done engraving and I've done wood turning all my life, but there was people there who had never done anything like that and the stuff they were doing on the drawing side and the tracing side and the printing side amazed me. (Participant 5, male stroke survivor, 61 years)

Opportunities for Communication Recovery

The art group appeared to provide survivors with opportunities for practicing *communication* in a supportive environment. For the four survivors with speech and language impairments, creative engagement enhanced conversational abilities and appeared to enhance *communication recovery*. This occurred in several ways. Firstly, art provided a sociable environment in which verbal and non-verbal conversation was fostered:

....one of the nurse says, before you came here, you couldn't say a word...you came in here

and I asked you questions and you just pointed at things. But, however, after doing art I came out talking...Could be many things. It was quite hard for me not be able to say what I actually wanted to say but I was chatting away and it all came started to come back. Conversation helped a lot (Participant 3, male survivor, 64 years).

I know it's not always easy in that kind of situation, they don't understand what each other's been saying. It must have been really hard for them and more frustrating.... but they all seemed to understand what message they're all trying to get across. (Artist 1, female, 7 years experience).

Secondly, many survivors recognized that art provided opportunity for expression for those with communication difficulties. Those survivors were able to interact with others through non-verbal *communication*, whilst creating artwork. One 62 year old female survivor (Participant 8) recounts this:

There are a lot of people that couldn't talk, their speech was bad. There was this girl and you've got to sit and listen to what she was saying because you couldn't make it out. You tell her things, jokes and she laughed, she understood you. All she said was, 'yeah' or 'no', but you had a laugh with her...Oh, it was fun. Oh, it was definitely fun and what she did was amazing. (Participant 8, female stroke survivor)

Artists also believed that the group promoted *communication recovery* and that survivors with various abilities could develop common understanding through art participation. The pursuit of artistic goals appeared to transcended verbal communication. The common understanding stemmed from stroke survivors willingness and desire to support and help each other:

When they have communication difficulties you don't need to communicate to make a picture, you can express your thoughts on paper and you may need to communicate with the artist...listening, understanding and communicating with each other, just getting the opportunity to get away from the bedside (Artist 3, female, 5 years experience)

PROCESSES OF ART MAKING

Identifying and creating ideas, working with materials and producing a piece of completed artwork

conferred empowerment and *control* to survivors, something that many felt that they had lost in having the stroke. Control appeared to stem from engaging in processes of art making, particularly the opportunities for *goal setting* that art provided. Some survivors explicitly sought to achieve self-directed recovery goals as well as artistic output, which enhanced confidence for recovery. Empowerment was another emerging concept, in which art making provided a sense of *control* over ability to meet future challenges beyond artwork.

Goal setting and recovery

Art participation provided survivors with opportunities to set personal goals related to art, but also to stroke, and enabled them to *control* goal achievement. Effects stemmed mainly from the opportunity art provided to survivors to use their hands, thereby improving upper limb recovery. The rapid improvements survivors experienced, gave them confidence to *control physical recovery*, leading to *hope* for future recovery. These effects occurred in two ways. Firstly, survivors described intentionally using the stroke affected upper limb for explicit problem solving to achieve a task:

There were a lot of things that I couldn't do but if you persevere, you get a way of doing it. I used to say, oh, I can't do that or I've got to find out if I can do this. Within ten minutes, I could manage to get a way of doing it. I can't write or anything else, yet I was able to draw in the art class and this is slowly coming back now. (Participant 9, female stroke survivor, 75 years).

In contrast to the deliberate goal setting for upper limb use described by survivors, however, artists considered that art engagement provided survivors with incidental opportunities to use their limbs:

I think when they are involved in doing something like painting, they are so involved in the creative process they don't realise that they are maybe doing physical things, using their arms and thinking as well. I guess doing art helps with skills with using their limbs, their hands and their sight, but they don't really think of it in that sense. (Artist 3, female, 5 years experience)

Secondly, participation in art also provided some survivors with opportunities to explore alternative ways to achieve goals, through use of the non-dominant unaffected limb, thereby enhancing sense of *control* and *confidence* in managing their situation. Stroke survivors described pride at achieving artwork using the non-dominant upper limb. They derived satisfaction from producing something

meaningful despite their impairment. The focus on achieving something positive illustrated to survivors that they could adapt to their physical status. This contrasted with the focus on loss that is typically addressed in therapy. The ability to adapt that was facilitated through art participation appeared transferrable to life beyond rehabilitation:

I was really surprised that I was able to do it so well, especially with my left hand. Because it took a while just to learn the right way to hold a pencil. Well my first thought was, thank God I can do something with my left hand, because I'm not left handed, I'm right handed. (Participant 7, female survivor 75 years)

The artists' views reflected these findings, suggesting that whilst challenging personal physical boundaries, art also influenced survivors' ability and *confidence* to adapt activities to achieve their goals, even when this was through development of skills with the non-dominant arm:

Doing art shows they've got no limit, they're not limited by the fact they haven't used their dominant side, but they can still produce beautiful work. It's so good how they've adapted to use their skills. Although they've lost maybe the power in one of their hands, they can still use their non-dominant hand for work in art. (Artist 1, female, 8 years experience)

Ownership, empowerment and control

We defined ownership of artwork as the sense that it belonged to the survivor, and was an extension of them. Engaging with preferred materials to produce something of personal interest supported a sense of *self-efficacy* for achievement through art, and beyond that, for enjoyable activities after stroke. This was evident when survivors produced creative and personally meaningful artwork:

I was over the moon with what I had done. The painting was mine, I did it and now it's mine... I would never have dreamt of putting tissue paper...and just painting over it like that and getting a good picture... I was quite disabled by stroke and just to be able to produce something was amazing. Art helped me to find out that I could do it again. (Participant 2, female survivor, 67 years)

Artists agreed that sense of ownership was derived from creating original and meaningful art:

Often you could find something that somebody was interested in a picture of a flower or a vinyl cut they could feel that is their own thing. There are triggers, sometimes ideas that

makes people feel more like oh yeah maybe I could do that or you know, just feeling better about themselves (Artist 1, female, 8 years experience)

Art appeared to provide a sense of *control* that empowered survivors to deal with their situation. Participation in art provided skills and *confidence* to transfer positive gains from art engagement to experiences outside the creative setting. This gave survivors new skills or re-established old ones:

I used to bake lots of things. It was mixing and that and shaping it. So it helped me get back into that. It really made a difference to my hand Participant 5, female stroke survivor, 61 years)

Artists also recognized the sense of *control* and empowerment that art provided over wider recovery and return to valued activities:

There was this gentleman, he will always say "Oh I don't think I want to come, I can't draw, I am useless, and I'll be rubbish". He thought he would never be able to do anything like that, because his preferred hand was weaker ...So he went from being, "you know I can't do anything" to having these really creative ideas and he did go out of hospital (Artist 2, female, 7 years experience)

Emotional expression

Art making influenced emotions in two ways. Firstly art provided opportunities for survivors to reflect on their stroke and to expression their experience; and secondly, it provoked positive emotional responses and changes in *mood*.

By providing survivors with the opportunity to reflect on and express the emotional journey of their stroke, art enabled them to express their sense of loss, and the *hope* and determination they experienced as they moved forward in time from stroke onset. One survivor, describes his use of art to reflect a sense of loss and changed identity after stroke:

I saw my reflection in the window as if my face was floating outside, so it was just a vague vision, as if I were a kind of shadow outside. And I've been thinking about everything in my life that I have lost because of the stroke like fishing and shooting and horseriding and I felt

somewhat shrunken and empty as if I were this shadow of myself outside the house.
(Participant 11, male stroke survivor, 75 years)

Artists also describe how survivors used art to express emotional experiences of stroke:

There was another lady...she could not really draw, but she said to me the second day: "I woke up in the middle of the night and I knew what I wanted to ask you to do". And she used to be a weaver; she said "I want to weave a stroke tartan". I said "oh do you?" she said "yes I can see it in my mind, it's all black when I first had the stroke and then it goes a bit grey and then it has got flashes of yellow an orange which is the hope that I've got now" (Artist 3, female, 5 years experience)

Emotional responses

Processes of art making also appeared to generate change in emotion. Many survivors described creative activities as being uplifting and agreed that art changed their *mood*. This effect was explained in various ways, with many survivors reporting that artwork enabled them to concentrate, and lose themselves for a period of time. Survivors described how sessions were eagerly anticipated as something enjoyable that provided distraction from their situation:

Art helps you become more happy and positive because sometimes following a stroke, I mean I do think, 'God what's the future going to hold for me?...I think it makes you look forward to the next day, because it's not finished that day isn't it? And if you finish something, well start something new and it will keep you occupied and focused on what you have to achieve (Participant 5, female stroke survivor, 61 years).

Artists also reported that art making appeared absorbing, enabling people to re-focus themselves, restore lost *hope* and improve their *mood*:

One participant was very down when I first met him and tired as well...his mood was just really low, he'd lost the use of his preferred hand, his speech was impaired and he was in a wheelchair. So we started working, doing lino printing. And just very quickly, over the course of a few weeks, his mood really lifted and he looked so much better. He was doing amazingly well with his lino printing (Artist 1, female, 8 years experience)

TAILORING THE TASK

Tailoring the task to individual survivors was critical to achievement through art making. Artists used tailoring initially and on an on-going basis to explore survivors' interests, physical abilities and experience of artwork. Tailoring creative tasks to personal abilities, interests and preferences appeared to motivate survivors and build confidence by providing early indications that producing a piece of artwork was possible. Artists tailored tasks in two ways - by finding personally relevant art media; and by acting as facilitators to guide survivors through initial processes that illustrated their potential ability for art making.

Finding the relevant medium

Selecting an acceptable art medium appropriate to survivors' physical ability and interests appeared critical to initial engagement in art. Several survivors described the importance of selecting a medium that reflected personal interests and promoted motivation and enjoyment:

I suppose some of us prefer to use a pen, some prefer to use a brush. Other folk would rather make something out of clay or having previously sewn or knitting or anything like that, so the type of materials makes a difference. It's that whole kind of thing; I suppose it's whatever we like doing. (Participant 10, female stroke survivor, 71 years).

Artists also recognized the impact that appropriate selection of materials had on physical ability, *confidence* to produce artwork and enjoyment:

If somebody has had a stroke down the right side, having to use the left hand it is awkward and difficult. However, if you are giving them things that are easier to work with and you know will produce results then that are going to make it a nicer experience for them. (Artist 3, female, 5 years experience)

Facilitation

The facilitatory role of artists created engaging experiences that generated survivors' perceptions of artistic potential, again enhancing *confidence* for art. Artists acted as guides, providing suggestions and adapting materials according to survivors' preferences and progress, thus developing survivors' *confidence* in achieving valued creative output relevant to their capacities and interests:

In the beginning I was a bit like I am not doing any bloody art. I used to do pipes and drains so the artist understood that I used to be a manual worker so she gave me some clay instead of trying to do airy fairy collage or something. And I would make quite big pots and things and I was really pleased with that. Felt really good. (Participant 3, male stroke survivor, 64 years).

Artists also recognized that facilitator approaches generated survivors' confidence, which subsequently mediated improvements in mood:

Participants think that they're not going to be capable of doing what you're asking them to do....I know some methods in getting them to achieve a really good outcome and it usually surprises them...They come away from it feeling really happy about what they've managed...Just really chuffed with what they have managed to achieve (Artist 3, female, 5 years experience)

CREATIVE OUTPUT, RECOGNITION AND APPRAISAL

The art intervention programme included a display of artwork in a gallery wall on the ward, to share participants' work in an encouraging and appreciative environment. Appraisal of completed artwork and positive appraisal of it by others enhanced survivors' artistic *self-efficacy*, leading some to develop an artistic identity. These changes appeared to foster enhanced sense of *self-esteem*.

Self-efficacy for art

This appeared to occur in three ways. Firstly, producing a finished piece of work enhanced survivors' *self-efficacy* for art ability through growth of sense of achievement and pride in their work:

Well, I didn't think I'd be doing anything nice. But once my work was up on the board, I thought, "gosh, aren't we clever?" I couldn't believe what we have all done...Like I was shocked; not meaning it in any kind of way, just it was amazing(Participant 2, female survivor 67 years).

One gentleman had very little self-belief. I think he first started doing a plaque...Then he carried on and he did this three dimensional seagull and he was really proud that he'd done that. He also did a painting of the Forth bridge...But he was really proud he'd had this seagull

on display up on the wall...That was sort of pride of place in the corner on display. (Artist 1, female, 8 years experience)

Self-esteem

Secondly, producing an artistic output allowed survivors to develop new definitions of success that stemmed from others' appreciation of their creative ability and outputs. This process appeared to enhance survivors' sense of *self-esteem*:

It was good to do art, because I mean people did come up and say, "Oh I saw your work", and it went down quite well. I felt it was a bit of an achievement actually, to get it down and on paper and up on the wall. Also my photo was in the local paper (Participant 10, female stroke survivor, 71 years).

People often say "Oh that's brilliant, that's amazing, I didn't know you could do that" and that again increases self-esteem because they are hearing that, coming from the artist or the staff but from their own family so that is a great confidence booster. (Artist 2, female, 7 years experience).

Artistic identity

The development of "artistic identity" was another important effect. Here, stroke survivors were no longer referred to by disease status. Instead, identity of an artist was ascribed to them. Several artists and stroke survivors described how display of completed artwork changed how others perceived them. They were appreciated for what they could do, rather than what they were unable to do because of the stroke, as described by one survivor:

They said it was good. She said we've got an artist here. She said considering it was with your bad hand I couldn't even do that with my good hand...yeah, it helped you feel better about yourself. Then when people said they liked it, I felt even better (Participant 8, female survivor, 62 years).

I think the way they are perceived by other people is interesting...they now see him as the artist and they are impressed with what he can do...rather than the person being "oh my

husband whose had a stroke”, he is “my husband who is an artist now”. So you know seeing somebody in a different light. (Artist 2, female, 7 years experience).

However, positive appraisal by others was not always accepted as genuine by survivors, suggesting that positive self-appreciation was as important as appreciation from others in generating sense of artistic identity:

Well they were kind, but everyone could see it was a failure. I was really ashamed. Ashamed of my low level of achievement but also my low persistence rate (Participant 11, female stroke survivor, 86 years).

Summary

In summary, our data shows that three components of the art intervention - the social context, art making processes and creative output generate overlapping mechanisms of action that lead to benefits of art participation for stroke survivors.

DISCUSSION

Our findings indicate that there are plausible mechanisms of action to suggest that art participation positively influences mood, self-esteem, and some aspects of recovery. These may be achieved through enhancing hope, control and confidence. Furthermore, our findings suggest that each intervention component - social context, processes of art making, tailoring the intervention to personal preferences and physical abilities, and recognition and appraisal by others- is important and necessary for benefits to occur. Importantly, the benefits that we identified are measurable outcomes that may show effects when the intervention is tested in a trial. We illustrate these mechanisms of action and their influence on outcomes in an explanatory model (figure 1). Our findings are novel, providing for the first time, a framework of how art participation intervention might work to improve health outcomes after stroke. This research underpins intervention refinement for subsequent testing in an RCT to examine effectiveness of art for psychosocial outcomes after stroke. The trial protocol has been published and illustrates the way in which the information from the present study can be used to produce a replicable intervention and to identify measurable outcomes (24) .

Mood

Social interaction away from the clinical setting; and the art making process itself; provided survivors with an enjoyable experience. Enjoyment positively influenced mood and enabled survivors to regenerate social identities. The importance of art groups for establishment of social skills and relationships that provide distraction from the effects of illness has been illustrated in other qualitative studies examining art interventions in neurological conditions (6, 18, and 21) and older people (22). Such benefits have important implications for stroke recovery, given that many stroke survivors develop post-stroke depression (28). Whilst the theoretical basis of art in health remains underdeveloped, there is consensus that effects on mental health are in part attributable to social engagement with artists and other participants (6, 18, 20, 22) a finding supported by our data. Given the high prevalence of depression after stroke, measurement of mood and change in mood through art engagement will be a key outcome for evaluation of effects of the intervention.

Self-esteem

Self-esteem has been defined as affective evaluation of one's value or importance (29), and reflects a sense of self worth. Relationships that people have with significant others in their lives influence the perceptions that they hold of themselves (30). Self-esteem is important after stroke given that survivors with low self-esteem experience lower functional status and higher levels of depression than those with positive views of self (12, 31). Whilst other studies show that art influences self-esteem, (6, 22) our study is the first to illustrate that explicitly displaying artwork allows survivors to demonstrate to others that in the face of challenge, they have achieved something of value, which thereby influences self-esteem.

Control and Recovery

The opportunity to improve arm recovery was an important outcome of art participation for many survivors. That finding is concurrent with a previous qualitative study (18). However participants in that study struggled to use their affected arm during art making and were therefore less positive about the impact of art on recovery. The difference may be explained by the careful tailoring undertaken by artists in our study and their broad approach to goal-setting that appeared to enhance control over recovery. Such careful, tailoring appeared to facilitate personal goal setting and problem-solving to enhance survivor's sense of control over recovery and would therefore appear to be a key intervention component.

Control beliefs have been associated with positive physical outcomes after stroke (32, 33). The process of goal-setting, problem-solving and goal achievement inherent in creating a piece of artwork may have changed survivors' mental representation of their condition and perceptions of how they could facilitate recovery, increasing their confidence. Consequently, perceptions of upper limb control and recovery were enhanced, even where this involved the unaffected non-dominant arm. Researchers evaluating arts in health also propose that benefits from art participation may derive from enhanced perceptions of control over the health condition that art making provides (22, 34, 35) and, as our study also illustrates, that control may spread to control over other aspects of life. Evaluation of the role of control as a mediator of effects of art participation is a future evaluation that will enhance our understanding of the theoretical basis of the intervention.

The group environment provided opportunity for survivors with aphasia to develop social communication skills providing them with a safe and supportive social environment in which they could interact with others to practice speech and develop control and confidence in communication. This finding is reported in other art studies with neurological patients (21, 35). The opportunity for stroke survivors to participate in such social conversation is promoted by speech and language therapists (37) and illustrates the supportive role of art participation for this aspect of recovery (36).

Rehabilitation typically focuses on physical and functional restoration (37-40), and stroke survivors receiving rehabilitation have been described as "context free persons" with body functions to restore (41). Stroke is described as leading to life course disruption of and lost sense of social self (42, 43). Art appeared to provide continuity with pre-stroke self, but also developed a new post-stroke self. Survivors whose artwork expressed their "stroke journey" through use of colour and image illustrated this. Findings suggest that art making enables survivors to reframe perceptions of themselves as creative people for the future. Similar benefits of have previously been reported in rehabilitation settings (18, 34, 35), however ours is the first to illustrate renewed identity generated by art participation.

Distraction and relocation

The opportunity for distraction and immersion in something other than stroke had a perceived positive influence on survivors' mood. The findings supported by a review of art in rehabilitation (34),

showing that immersion in a task positively influences mood. The idea of distracted immersion has been conceptualized in Flow Theory (44) which offers a theoretical explanation of how immersion in a task, or flow, leads to positive affect. Although the impact of art participation on mood through the experience of flow has not been examined in clinical populations, our findings support this explanatory theory, suggesting that evaluation of the impact on mood of the immersive process of art making in clinical populations is probably important.

Confidence

Our data shows that artists' tailoring of artwork to impairment *and* interests appeared critical to survivors' confidence in their ability to produce artwork and be successful in broader life activities. This finding is supported in other qualitative studies of art in neurological conditions (18, 20-22, 35, 45). Our data also shows that the group interactions generated positive perceptions of survivors' own artistic abilities, through modeling and vicarious experience. Bandera's theory of self-efficacy suggests that developing mastery through success; persuasion by others that goal achievement is possible; coupled with vicarious experience of others' success may lead to positive beliefs about ability to organise and achieve goals. The social environment of our intervention, the role of the artist and the art making process itself appear to provide these conditions. Improved self-efficacy after stroke has been associated with higher quality of life and fewer depressive symptoms (48, 49) and is therefore an important outcome for survivors; albeit one that mediates other effects. Art specific self-efficacy and general sense of self-efficacy developed through art participation suggest that art may be an important adjunct to rehabilitation by development of confidence for trying and succeeding in novel and challenging activities.

Future research

This study suggests a number of measurable outcomes that may be influenced by art participation. Future research should evaluate the effects of art participation on these outcomes using robust trial methods. Although constructing the benefits of art participation into measurable outcomes may be seen as rather a reductionist approach, if arts in health programmers are to be supported by funders, evidence of short and longer-term effectiveness in clinical situations is vital for credibility. Although we have proposed a number of theoretical constructs by which effects may occur, a more robust theory of art participation in health should be developed and tested if art is to have credibility in health and social settings.

Study limitations

The strength of this study lies in our rigorous approach to purposive sampling, development of interview content based on previous literature and our systematic iterative approach to analysis. A further strength is the involvement of key stakeholders to generate understanding *from practice* of the art programme that will enable us to design an acceptable and feasible intervention for future testing in a trial.

There are several study limitations. Firstly, the sample size was limited by sample availability – only 24 participants had undertaken the art programme in the previous year - therefore we may have obtained a limited range of views. However, few new issues emerged during later interviews; therefore most issues were probably captured. Secondly, although some participants had experienced aphasia soon after stroke, no participants with significant current communication or cognitive impairments participated. We also did not sample for ethnic or social diversity, therefore perceptions of these groups are not represented. The study was conducted several months after art participation therefore hindsight bias may be an issue. The rich data does however suggest that survivors' views remained strong and complex. Finally, framework analysis was selected as it provides a structured and transparent approach to data management and was appropriate for the applied and pragmatic nature of the current project. However the approach is less inductive than other theoretically based qualitative analysis approaches (49). Although useful for our explanatory framework, the approach may have limited our potential to identify more robust theoretical constructs.

Conclusion

This study highlights benefits that participating in art may confer on stroke survivors and provides a model of intervention components, mechanisms of action, outcome mediators and effects to explain how the intervention might work. The study illustrates that art may provide an important adjunct to rehabilitation, influencing important outcomes that other rehabilitation approaches do not typically address. The study paves the way for a future effectiveness trial.

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